



**VEL TECH MULTI TECH  
Dr RANGARAJAN Dr.SAKUNTHALA  
ENGINEERING COLLEGE**

(An ISO 9001: 2008 Certified Institution)

(Owned by Vel Trust)

(Approved by Govt. of Tamil Nadu and affiliated to Anna University and  
Accredited by NBA, New Delhi)



**SYLLABUS**

**WEEKLY SCHEDULE**

**VII SEMESTER                      2015 - 2016**

**DEPARTMENT OF CSE**

**IV DEGREE COURSE**

**42, Avadi – Alamathi Road,**

**Chennai – 600062**

**Telefax – 044-26841061**

E-mail: [emailto@veltechmultitech.org](mailto:emailto@veltechmultitech.org)

Website : [www.veltechmultitech.org](http://www.veltechmultitech.org)



## **WEEK DETAILS**

<b>SL.NO.</b>	<b>WEEK</b>	<b>FROM</b>	<b>TO</b>
1	<b>WEEK1</b>	<b>24.06.2015</b>	<b>26.06.2015</b>
2	<b>WEEK2</b>	<b>29.06.2015</b>	<b>03.07.2015</b>
3	<b>WEEK3</b>	<b>06.07.2015</b>	<b>10.07.2015</b>
4	<b>WEEK4</b>	<b>13.07.2015</b>	<b>17.07.2015</b>
5	<b>WEEK5</b>	<b>20.07.2015</b>	<b>24.07.2015</b>
6	<b>WEEK6</b>	<b>27.07.2015</b>	<b>28.07.2015</b>
7	<b>WEEK7</b>	<b>03.08.2015</b>	<b>07.08.2015</b>
8	<b>WEEK8</b>	<b>10.08.2015</b>	<b>14.08.2015</b>
9	<b>WEEK9</b>	<b>17.08.2015</b>	<b>21.08.2015</b>
10	<b>WEEK10</b>	<b>24.08.2015</b>	<b>28.08.2015</b>
11	<b>WEEK11</b>	<b>31.08.2015</b>	<b>04.09.2015</b>
12	<b>WEEK12</b>	<b>07.09.2015</b>	<b>11.09.2015</b>
13	<b>WEEK13</b>	<b>14.09.2015</b>	<b>18.09.2015</b>
14	<b>WEEK14</b>	<b>21.09.2015</b>	<b>25.09.2015</b>
15	<b>WEEK15</b>	<b>28.09.2015</b>	<b>30.09.2015</b>
16	<b>WEEK16</b>	<b>05.10.2015</b>	<b>09.10.2015</b>
17	<b>WEEK17</b>	<b>12.10.2015</b>	<b>16.10.2015</b>
18	<b>WEEK18</b>	<b>19.10.2015</b>	<b>20.10.2015</b>
19	<b>WEEK19</b>	<b>27.10.2015</b>	<b>30.10.2015</b>

## **SUBJECT CONTENTS**

<b>SL.NO</b>	<b>SUBJECT CODE</b>	<b>SUBJECT NAME</b>
<b>THEORY</b>		
<b>1</b>	<b>MG2452</b>	<b>Engineering Economics &amp; Financial Accounting</b>
<b>2</b>	<b>CS2401</b>	<b>Computer Graphics</b>
<b>3</b>	<b>CS2402</b>	<b>Mobile and Pervasive Computing</b>
<b>4</b>	<b>CS2403</b>	<b>Digital Signal Processing</b>
<b>5</b>	<b>IT2024</b>	<b>User Interface Design</b>
<b>6</b>	<b>IT2032</b>	<b>Software Testing</b>
<b>PRACTICAL</b>		
<b>7</b>	<b>CS2405</b>	<b>Computer Graphics Lab</b>
<b>8</b>	<b>CS2406</b>	<b>Open Source Lab</b>

**TEST / EXAM SCHEDULE**

<b>SL.NO</b>	<b>SUBJECT CODE</b>	<b>SUBJECT NAME</b>	<b>UNIT TEST I</b>	<b>UNIT TEST II</b>	<b>Pre Model Exam</b>	<b>UNIT TEST IV</b>
1	MG2452	Engineering Economics & Financial Accounting	13.07.2015	03.08.2015	21.08.2015	14.09.2015
2	CS2401	Computer Graphics	14.07.2015	04.08.2015	22.08.2015	15.09.2015
3	CS2402	Mobile and Pervasive Computing	15.07.2015	05.08.2015	24.08.2015	16.09.2015
4	CS2403	Digital Signal Processing	16.07.2015	06.08.2015	25.08.2015	18.09.2015
5	IT2024	User Interface Design	17.07.2015	07.08.2015	26.08.2015	21.09.2015
6	IT2032	Software Testing	20.07.2015	10.08.2015	27.08.2015	22.09.2015

<b>SL.NO</b>	<b>SUBJECT CODE</b>	<b>SUBJECT NAME</b>	<b>MODEL EXAM</b>
1	MG2452	Engineering Economics & Financial Accounting	05.10.2015
2	CS2401	Computer Graphics	06.10.2015
3	CS2402	Mobile and Pervasive Computing	07.10.2015
4	CS2403	Digital Signal Processing	08.10.2015
5	IT2024	User Interface Design	09.10.2015
6	IT2032	Software Testing	12.10.2015

# **MG2452 : ENGINEERING ECONOMICS AND FINANCIAL ACCOUNTING**

## **UNIT I: INTRODUCTION**

**WEEK 1:** Managerial Economics – Relationship with other disciplines

**WEEK 2:** Firms: Types, objectives and goals

**WEEK 3:** Managerial decisions - Decision analysis

## **UNIT II: DEMAND & SUPPLY ANALYSIS**

### **WEEK 4: UNIT TEST-I**

Demand - Types of demand - Determinants of demand -

**WEEK 5:** Demand function - Demand elasticity - Demand forecasting

**WEEK 6:** Supply - Determinants of supply - Supply function - Supply elasticity.

### **WEEK 7: UNIT TEST-II**

### **WEEK 8:**

## **UNIT III: PRODUCTION AND COST ANALYSIS**

**WEEK 9:** Production function - Returns to scale -Production optimization - Least cost input - Isoquants - Managerial uses of production function.

**WEEK 10:** Cost Concepts - Cost function – Types of Cost - Determinants of cost

**WEEK 11:** Short run and Long run cost curves - Cost Output Decision - Estimation of Cost.

## **WEEK12: MODEL PRACTICAL EXAMINATION 1**

### **UNIT IV – PRICING**

#### **WEEK 13: UNIT TEST-III**

**WEEK 14: Determinants of Price Pricing under different objectives and different market structures- Price discrimination**

**WEEK 15: Pricing methods in practice – role of Government in pricing Control**

#### **WEEK 16: UNIT TEST-IV**

### **UNIT V - FINANCIAL ACCOUNTING (ELEMENTARY TREATMENT)**

**WEEK 17: Balance sheet and related concepts - Profit & Loss Statement and related concepts -Financial Ratio Analysis - Cash flow analysis - Funds flow analysis Comparative financial statements**

**WEEK 18: - Analysis & Interpretation of financial statements- Investments - Risks and return evaluation of investment decision - Average rate of return Payback Period Net Present Value - Internal rate of return**

#### **WEEK 19: - UNIT TEST-V**

#### **WEEK 20: MODEL THEORY EXAM (5 UNITS)**

#### **WEEK 21: MODEL PRACTICAL EXAM**

### **TEXT BOOK**

1. McGuigan, Moyer and Harris, 'Managerial Economics; Applications, Strategy and Tactics', Thomson South Western, 10th Edition, 2005.
2. Prasanna Chandra. 'Fundamentals of Financial Management', Tata Mcgraw HillPublishing Ltd., 4th edition, 2000

### **REFERENCES**

1. Samuelson. Paul A and Nordhaus W.D., 'Economics', Tata Mcgraw Hill Publishing Company Limited, New Delhi, 2004.
2. Paresh Shah, 'Basic Financial Accounting for Management', Oxford University Press, New Delhi, 2007.
3. Salvatore Dominick, 'Managerial Economics in a global economy'. Thomson South Western, 4th Edition, 2001

## **CS2401: COMPUTER GRAPHICS**

### **UNIT I: 2D PRIMITIVES**

**WEEK 1:** output primitives – Line, Circle and Ellipse drawing algorithms - Attributes of output primitives

**WEEK2:** 2D Geometric transformation

**WEEK 3:** - Two dimensional viewing –Line, Polygon, Curve and Text clipping algorithms

### **UNIT II : 3D CONCEPTS**

#### **WEEK 3 : UNIT TEST-I**

Parallel and Perspective projections – 3D object representation

**WEEK 4:** Polygons, Curved lines, Splines, Quadric Surfaces,- Visualization of data sets

**WEEK 5:** 3Dtransformations – Viewing -Visible surface identification.

#### **WEEK 6: UNIT TEST-II**

#### **WEEK 7:**

### **UNIT III: GRAPHICS PROGRAMMING**

**Color Models – RGB, YIQ, CMY, HSV**

**WEEK 7:**– Animations – General Computer Animation

**WEEK 8:** Graphics programming using OpenGLRaster, Keyframe-  
Basic graphics primitives

**WEEK 9:** Drawing three dimensional objects - Drawing three  
dimensional scenes

**WEEK10: UNIT TEST-III**

**UNIT IV: RENDERING**

**WEEK 10:** Introduction to Shading models – Flat and Smooth  
shading

**WEEK 11:** Adding texture to faces –Adding shadows of objects –  
Building a camera in a program

**WEEK 12:** Creating shaded objects– Rendering texture – Drawing  
Shadows.

**WEEK 13: UNIT TEST-IV**

**UNIT V : FRACTALS**

**WEEK 14:** Fractals and Self similarity – Peano curves – Creating  
image by iterated functions –Mandelbrot sets- Julia Sets – Random  
Fractals

**WEEK 15:** Overview of Ray Tracing –Intersecting rays with other  
primitives Adding Surface texture

**WEEK 16:** Reflections and Transparency – Boolean operations on  
Objects

**WEEK 17: UNIT TEST-V**

**WEEK 18: MODEL THEORY EXAM(5 UNITS)**



## **WEEK 19: MODEL PRACTICAL EXAM**

### **TEXT BOOKS**

1. Donald Hearn, Pauline Baker, Computer Graphics – C Version, second edition, Pearson Education, 2004.
2. F.S. Hill, Computer Graphics using OpenGL, Second edition, Pearson Education, 2003.

### **REFERENCES**

1. James D. Foley, Andries Van Dam, Steven K. Feiner, John F. Hughes, Computer Graphics- Principles and practice, Second Edition in C, Pearson Education, 2007.

## **CS2402 : MOBILE AND PERVASIVE COMPUTING**

### **UNIT I: MOBILE NETWORKS**

**WEEK 1:** Cellular Wireless Networks – GSM – Architecture

**WEEK 2:** Protocols– Connection Establishment – Frequency Allocation

**WEEK 3:** Routing – Mobility Management – Security –GPRS.

### **UNIT II : WIRELESS NETWORKS**

#### **WEEK 3: UNIT TEST-I**

Wireless LANs and PANs – IEEE 802.11 Standards – Architecture

**WEEK 4:** Services –Network –Hiper LAN – Blue Tooth- Wi-Fi – WiMAX

**WEEK 5:** Blue Tooth- Wi-Fi – WiMAX

**WEEK 6: UNIT TEST-II**

**UNIT III: ROUTING**

**WEEK 7:** Mobile IP

**WEEK 8:** DHCP – AdHoc

**WEEK 9:** Proactive and Reactive Routing Protocols – Multicast Routing.

**WEEK 10: UNIT TEST-III**

**UNIT IV: TRANSPORT AND APPLICATION LAYERS**

**WEEK 10:** Mobile TCP– WAP – Architecture

**WEEK 11:** Programming Model– WDP – WTLS – WTP

**WEEK 12:** WSP – WAE – WTA Architecture – WML – WMLScripts.

**WEEK13: UNIT TEST-IV**

**UNIT V: PERVASIVE COMPUTING**

**WEEK 14: REVISION (1-4)UNITS**

**WEEK 15:** Pervasive computing infrastructure-applications- Device Technology- Hardware, Human-machine Interfaces, Biometrics, and Operating systems

**WEEK 16:**Device Connectivity –Protocols, Security, and Device Management- Pervasive Web Application architecture- Access from PCs and PDAs - Access via WAP

**WEEK 17: UNIT TEST-V**

**WEEK 18: MODEL THEORY EXAM (5 UNITS)**

**WEEK 19: MODEL PRACTICAL EXAM**

**TEXT BOOKS**

1. Jochen Schiller, “Mobile Communications”, PHI, Second Edition, 2003.
2. Jochen Burkhardt, Pervasive Computing: Technology and Architecture of Mobile Internet Applications, Addison-Wesley Professional; 3rd edition, 2007

**REFERENCES**

1. Frank Adelstein, Sandeep KS Gupta, Golden Richard, Fundamentals of Mobile and Pervasive Computing, McGraw-Hill 2005
2. Debashis Saha, Networking Infrastructure for Pervasive Computing: Enabling Technologies, Kluwer Academic Publisher, Springer; First edition, 2002

**CS2403: DIGITAL SIGNAL PROCESSING**

**UNIT I: SIGNALS AND SYSTEMS**

**WEEK 1:** Basic elements of digital signal Processing –Concept of frequency in continuous time and discrete time signals

**WEEK 2:** Sampling theorem –Discrete time signals. Discrete time systems

**WEEK 3:** Analysis of Linear time invariant systems –Z transform – Convolution and correlation.

**UNIT II: FREQUENCY TRANSFORMS**

**WEEK 3: UNIT TEST-I**

Introduction to DFT – Properties of DFT

**WEEK 4:** Filtering methods based on DFT – FFT Algorithms  
Decimation, in – time Algorithms

**WEEK 5:** Decimation – in – frequency Algorithms –Use of FFT in  
Linear Filtering – DCT.

**WEEK 6: UNIT TEST-II**

**UNIT III: IIR FILTER DESIGN**

**WEEK 7:** Structures of IIR – Analog filter design

**WEEK 8:** Discrete time IIR filter from analog filter IIRfilter design  
by Impulse Invariance

**WEEK 9:** Bilinear transformation, Approximation of derivatives–  
(HPF, BPF, BRF) filter design using frequency translation

**WEEK10: UNIT TEST-IV**

**UNIT IV: FIR FILTER DESIGN**

**WEEK 10:** Structures of FIR – Linear phase FIR filter – Filter design  
using windowing techniques,

**WEEK 11.** Frequency sampling techniques

**WEEK 12:** Finite word length effects in digital Filters

**WEEK 13: UNIT TEST-V**

**UNIT V: APPLICATIONS**

**WEEK 14: REVISION (1-4)UNITS**

**WEEK 15:** Multirate signal processing Speech compression Adaptive  
filter

**WEEK 16:** Musical sound processing – Image enhancement

**WEEK 17: UNIT TEST-V**

**MODEL PRACTICAL EXAMINATION**

**WEEK 18: MODEL THEORY EXAM (5 UNITS)**  
**WEEK 19: MODEL PRACTICAL EXAMINATION**

**TEXT BOOK**

1. John G Proakis and Dimtris G Manolakis, “Digital Signal Processing Principles, Algorithms and Application”, PHI/Pearson Education, 2000, 3<sup>rd</sup> Edition.

**IT2024 : USER INTERFACE DESIGN**

**UNIT I: INTRODUCTION**

**WEEK 1:** Human–Computer Interface – Characteristics of Graphics Interface

**WEEK 2:** Direct Manipulation Graphical System – Web User Interface

**WEEK 3:** Popularity –Characteristic & Principles

**UNIT II: HUMAN COMPUTER INTERACTION**

**WEEK 4: UNIT TEST-I**

User Interface Design Process – Obstacles –Usability –Human Characteristics In Design– Human Interaction Speed –Business Functions –Requirement Analysis – Direct –Indirect Methods

**WEEK 5:** Basic Business Functions – Design Standards – System Timings – Human Consideration In Screen Design – Structures Of Menus – Functions Of Menus–Contents Of Menu

**WEEK 6:** Formatting – Phrasing The Menu – Selecting Menu Choice– Navigating Menus– Graphical Menus.

**WEEK 7: UNIT TEST-II**

**UNIT III: WINDOWS**

**WEEK 8:** Characteristics– Components– Presentation Styles– Types– Managements–Organizations– Operations– Web Systems– Device

**WEEK 9:** Based Controls Characteristics–Screen – Based Controls – Operate Control – Text Boxes– Selection Control–Combination Control– Custom Control– Presentation Control.

**UNIT IV: MULTIMEDIA**

**WEEK 10: UNIT TEST-III**

Text for Web Pages – Effective Feedback

**WEEK 11:** Guidance & Assistance–Internationalization– Accessibility

**WEEK 12:** Icons– Image– Multimedia – Coloring.

**WEEK 13: UNIT TEST-IV**

**UNIT V: WINDOWS LAYOUT– TEST**

**WEEK 14:** Prototypes – Kinds of Tests – Retest

**WEEK 15:** Information Search – Visualization – Hypermedia

**WEEK 16:** WWW– Software Tools.

**WEEK 17 UNIT TEST-V**

**WEEK 18 MODEL PRACTICALS**

**WEEK 19 MODEL EXAM**

**WEEK 20 MODEL EXAMINATION (5 UNITS)**

**TEXT BOOKS:**

1. Wilbent. O. Galitz ,“The Essential Guide To User Interface Design”, John Wiley&Sons, 2001.
2. Ben Sheiderman, “Design The User Interface”, Pearson Education, 1998.

**REFERENCES:**

1. Alan Cooper, “The Essential Of User Interface Design”, Wiley – Dream Tech Ltd.,2002.

**IT2032 : SOFTWARE TESTING****UNIT I: INTRODUCTION**

**WEEK 1:** Testing as an Engineering Activity – Role of Process in Software Quality – Testing as a Process – Basic Definitions – Software Testing Principles

**WEEK 2:** The Tester’s Role in a Software Development Organization – Origins of Defects – Defect Classes – The Defect Repository and Test Design

**WEEK 3:** Defect Examples – Developer/Tester Support for Developing a Defect Repository.

**UNIT II : TEST CASE DESIGN****WEEK 4: UNIT TEST-I**

Introduction to Testing Design Strategies – The Smarter Tester – Test Case Design Strategies – Using Black Box Approach to Test Case Design Random Testing –Requirements based testing – positive and negative testing — Boundary Value Analysis – decision tables

**WEEK 5:** Equivalence Class Partitioning state-based testing– cause effect graphing – error guessing - compatibility testing – user documentation testing –domain testing Using White–Box Approach

to Test design – Test Adequacy Criteria –static testing vs. structural testing – code functional testing

**WEEK 6:** Coverage and Control Flow Graphs – Covering Code Logic – Paths – Their Role in White-box Based Test Design –code complexity testing – Evaluating Test Adequacy Criteria Multirelational OLAP – Categories of Tools – OLAP Tools and the Internet.

## **WEEK 7: UNIT TEST-II**

### **UNIT III: LEVELS OF TESTING**

**WEEK 8:** The Need for Levels of Testing – Unit Test – Unit Test Planning –Designing the Unit Tests. The Test Harness – Running the Unit tests and Recording results – Integration test – types of system testing - Acceptance testing –performance testing.

**WEEK 9:** Designing Integration Tests – Integration Test Planning – scenario testing –defect bash elimination -System Testing - types of system testing - Acceptance testing –performance testing Regression Testing – internationalization testing – ad-hoc testing -Alpha – Beta Tests – testing OO systems – usability and accessibility testing

### **UNIT IV: TEST MANAGEMENT**

#### **WEEK 10: UNIT TEST-III**

People and organizational issues in testing – organization structures for testing teams –testing services

**WEEK 11:** Test Planning – Test Plan Components – Test Plan Attachments – Locating Test Items – test management – test process - Reporting Test Results – The role of three groups in Test Planning and Policy Development

**WEEK 12** Introducing the test specialist – Skills needed by a test specialist – Building a Testing Group.

#### **WEEK 13: UNIT TEST-IV**



## **UNIT V : CONTROLLING AND MONITORING**

**WEEK 14:** Software test automation – skills needed for automation – scope of automation – design and architecture for automation – requirements for a test tool – challenges in automation

**WEEK 15:** Test metrics and measurements –project, progress and productivity metrics – Status Meetings – Reports and Control Issues – Criteria for Test Completion – SCM – Types of reviews

**WEEK 16** Developing a review program – Components of Review Plans– Reporting Review Results. – evaluating software quality – defect prevention – testing maturity model

**WEEK 17 UNIT TEST-V**

**WEEK 18 MODEL PRACTICAL EXAMINATION**

**WEEK 19 MODEL EXAMINATION**

### **TEXT BOOKS:**

1. Srinivasan Desikan and Gopalaswamy Ramesh, “ Software Testing – Principles and Practices”, Pearson education, 2006.
2. Aditya P.Mathur, “Foundations of Software Testing”, Pearson Education,2008.

### **REFERENCES:**

1. Boris Beizer, “Software Testing Techniques”, Second Edition,Dreamtech, 2003
2. Elfriede Dustin, “Effective Software Testing”, First Edition, Pearson Education,2003.
3. Renu Rajani, Pradeep Oak, “Software Testing – Effective Methods, Tools and Techniques”, Tata McGraw Hill, 2004.

## **CS2405: COMPUTER GRAPHICS LAB**

### **LIST OF EXPERIMENTS**

1. Implementation of Bresenham's Algorithm – Line, Circle, Ellipse.
2. Implementation of Line, Circle and ellipse Attributes
3. Two Dimensional transformations - Translation, Rotation, Scaling, Reflection Shear.
4. Composite 2D Transformations
5. Cohen Sutherland 2D line clipping and Windowing
6. Sutherland – Hodgeman Polygon clipping Algorithm
7. Three dimensional transformations - Translation, Rotation, Scaling
8. Composite 3D transformations
9. Drawing three dimensional objects and Scenes
10. Generating Fractal images

## **CS2406: OPEN SOURCE LAB**

### **LIST OF EXPERIMENTS**

1. Kernel configuration, compilation and installation : Download / access the latest kernel source code from kernel.org, compile the kernel and install it in the local system. Try to view the source code of the kernel
2. Virtualisation environment (e.g., xen, qemu or lguest) to test applications, new kernels and isolate applications. It could also be used to expose students to other alternate OSs like \*BSD

3. Compiling from source : learn about the various build systems used like the auto\* family, cmake, ant etc. instead of just running the commands. This could involve the full process like fetching from a cvs and also include autoconf, automake etc.,

4. Introduction to packet management system : Given a set of RPM or DEB, how to build and maintain, serve packages over http or ftp. and also how do you configure client systems to access the package repository

5. Installing various software packages

Either the package is yet to be installed or an older version is existing. The student can practice installing the latest version. Of course, this might need internet access.

Install samba and share files to windows

Install Common Unix Printing System (CUPS)

6. Write userspace drivers using fuse -- easier to debug and less dangerous to the system (Writing full-fledged drivers is difficult at student level)

7. GUI programming: a sample programme – using Gambas since the students have VB knowledge. However, one should try using GTK or QT

8. Version Control System setup and usage using RCS, CVS, SVN

9. Text processing with Perl: simple programs, connecting with database e.g., MySQL

10. Running PHP : simple applications like login forms after setting up a LAMP stack

11. Running Python : some simple exercise – e.g. Connecting with MySQL database

12. Set up the complete network interface using ifconfig command like setting gateway, DNS, IP tables, etc.,

\*\*\*\*\*